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Marshall Space Flight Center, Alabama 35812
256-544-0030
<http://www.nasa.gov/centers/marshall>

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Manager of Public and Employee Communications: June E. Malone
Editor: Jenalane Rowe

Demolition Makes Way for Cleanup at NASA's Santa Susana Field Laboratory

NASA is making steady progress toward cleanup at the Santa Susana Field Laboratory and is about to take a big step forward by preparing for the demolition of the test stands and supporting facilities. These structures, once an important part of our nation's space program, are inactive and will be demolished in three phases.

On Nov. 7, two three-hour public tours of the site gave approximately

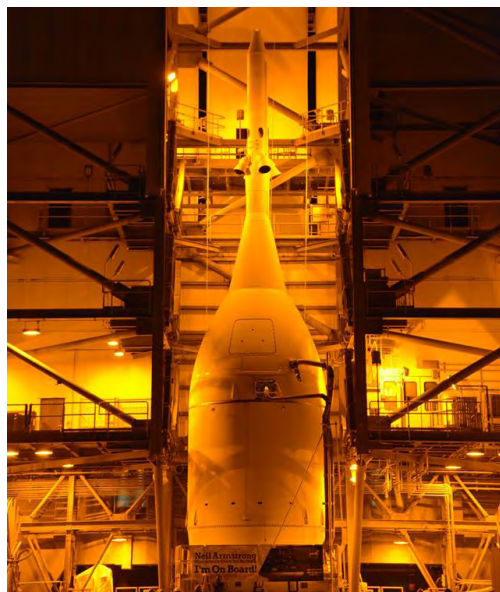
See Santa Susana on [page 2](#)



Susana Field Laboratory demolition project manager from Marshall's Office of Center Operations, participated in the public tours of the site on Nov. 7. (NASA/Armstrong/Tschida)

Orion Spacecraft Reaches Launch Pad

NASA's Orion spacecraft completed its move to Cape Canaveral Air Force Station Space Launch Complex 37 at 3:07 a.m. Nov. 12. After arrival at the launch pad, engineers and technicians will lift Orion and mount it atop a United Launch Alliance Delta IV Heavy rocket. Orion is scheduled to launch Dec. 4 atop the Delta IV for its first uncrewed flight test, and in 2018 on NASA's Space Launch System. SLS will be the most powerful rocket ever built for deep space missions. The Marshall Center manages the SLS Program for the agency. For more on Marshall role in Orion's first test flight, [click here.](#) (NASA)



NASA Brings Unprecedented 3-D Views from Space to Your Computer

By Bill Hubscher

In the middle of the last century, going to the theater for a 3-D film was considered a unique experience of state-of-the-art technology. People had a box of popcorn and special glasses, and were ready to jump out of their seats when something reached out from the screen to grab them.

Today, you no longer need to find a theater to experience three-dimensional moving pictures, but can join millions of people watching online. NASA is bringing the 3-D experience to your computer with a new playlist of 3-D videos on the agency's official YouTube channel, including footage recorded on the [International Space Station](#) and other fascinating images from the nation's space program.

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European Space Agency astronaut Andre Kuipers works with the 3-D camera on the International Space Station during Expedition 31 in 2012. (NASA)

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55 interested members of the public a chance to view and photograph areas targeted for demolition in phase one and two. Demolition will begin in November, with service area structures in the northern part of Area II and the Delta Test Area, and is expected to last a year. Phase two of demolition will focus on the Coca Test Area in 2015.

NASA's Marshall Space Flight Center's Office of Center Operations has several team members supporting the demolition effort.

"Demolition is a necessary and important step toward cleanup, and it has been preceded by careful planning to ensure the health and safety of the work teams onsite, the public and the environment," said Allen Elliott, program manager for the Santa Susana Field Laboratory. "Progress is being made, and NASA remains committed to meeting our environmental cleanup agreements at Santa Susana."

NASA is working to finalize plans for the final phase of demolition. Active public involvement has been instrumental in the preservation of at least one test stand and one control house at the field laboratory.

NASA is working with the California State Historic Preservation Officer, the Santa Ynez Band of Chumash Indians and the California Department of Toxic Substance Control -- the agency overseeing site cleanup -- to finalize preservation plans.

"NASA is proud of the significant role the site played in our nation's spaceflight history, and we take our environmental stewardship and historic preservation activities at the site seriously," said Steve Doering, director of Marshall's Office of Center Operations. "We have a dedicated team of experts and professionals working each day conducting pre-demolition surveys and preparing for our next steps."

For demolition, NASA is working with the U.S. Corps of Engineers because of their extensive experience with similar projects and with the contractor Bhate Environmental Associates Inc., whose past work includes the safe demolition of obsolete structures at Marshall.

Marshall manages the Santa Susana Field Laboratory for the agency. For more information about demolition efforts at Santa Susana, visit [here](#).

NASA Selects Student Teams for High-Powered Rocket Challenge

By Chris Blair

NASA has selected 40 student teams from universities, colleges, high schools and middle schools to design and launch high-powered rockets at the 2014-2015 [NASA Student Launch Challenge](#), to be held April 7-12, 2015, near [NASA's Marshall Space Flight Center](#). The teams hail from 26 states plus the commonwealth of Puerto Rico and represent a diverse population including minority-serving institutions.

Having completed the competitive proposal process, teams will design, build and launch a reusable rocket. During the design and testing process, student teams will undergo in-depth technical reviews and follow real-world safety guidelines, led by NASA scientists, engineers and educators.

The NASA Student Launch is supported by [NASA's Office of Education](#) and ATK Aerospace Group of Prominatory, Utah. New this year will be the [Mars Ascent Vehicle Prize](#), supported by NASA's [Centennial Challenges Program](#), it is part of [NASA's Science and Technology Mission Directorate](#).

The work and effort of the NASA Student Launch ensures the availability and continued advancement of strategic, technical and programmatic capabilities to sustain [NASA's](#) mission. It emphasizes the workforce pipeline by working collaboratively with other agencies to engage students, teachers, and faculty in NASA's missions and unique assets.

For a complete list of the 2014-2015 teams, please visit [here](#).

For the latest news and updates, follow Student Launch at [Facebook](#) and [Twitter](#).

For more information about NASA Education, please visit the [NASA Office of Education](#) website.

Blair, an ASRC Federal/Analytical Services employee, supports the Office of Strategic Analysis & Communications.



A student rocket launches into the sky above the Bonneville Salt Flats in Utah during the NASA Student Launch "Launchfest" event May 17, 2014. The rocket was one of 16 designed, built, tested and launched by universities from across the country. (NASA/MSFC)

3-D Views from Space *Continued from page 2*

The films of the Mercury and Apollo astronauts floating in orbit and walking on the surface of the moon are a major part of the world's visual history. As we continue to explore space, NASA's imaging experts have advanced the science of imaging technology so that even more breathtaking pictures let viewers virtually experience the phenomenon of spaceflight.

"Delivering images from these new and exciting locations is how we share our accomplishments with the world," said Rodney Grubbs, program manager for NASA's Imagery Experts Program at the [Marshall Space Flight Center](#). "As the industry made advances in technology, from film to digital cameras and then cameras with better resolutions, we all benefited by seeing sharper and cleaner images from space. We also started saving on launch costs with cameras taking up less room and weight in a spacecraft, including shrinking the material on which we record images -- from film to standard definition video tape to high-definition digital files on reusable storage media."

NASA took the next step toward bringing back stunning footage from space when the agency sent a 3-D HDTV camera with the crew of [STS-135](#) to document the final space shuttle mission aboard the space shuttle Atlantis in July 2011. The camera stayed on the space station so the various crews could record their experiences and share them with the world.

"Shooting in 3-D hasn't changed much in 50 or 60 years," Grubbs said. "The camera still has two distinct left and right lenses, but now we record to two separate flash memory cards, one for the left camera eye and one for the right. We don't have to transmit taped footage from the station and re-record it here on the ground. We can simply download an exact copy of those digital files, merge them in our editing software here, and create the same 3-D image they had in orbit."

These new videos will provide much of the content for NASA's new online 3-D video playlist. Some of the first footage posted shows a [tour of the space station](#) and [astronauts exploring water surface tension in microgravity](#) with both the 3-D camera and a miniature HD camera in a waterproof case inside a volleyball-sized water bubble. Standard



Rodney Grubbs, program manager for NASA's Imagery Experts Program at the Marshall Space Flight Center, displays the 3-D camera that was returned from the International Space Station. The monitor behind him shows the 3-D video that will need special glasses to be viewed correctly. (NASA/MSFC/Emmett Given)

two-dimensional versions of both the [tour video](#) and the [water surface tension video](#) are also available.

All these decades of recording and documenting the astronaut experience have led to a new, unexpected [scientific investigation into the use of 3-D cameras](#) beyond documentation. Scientists and engineers are interested in this investigation of 3-D cameras for possible future use to determine proximity in space and for rendezvous and docking operations.

In the meantime, Grubbs and his team are now planning to send up a camera that could shoot nearly six times the resolution of an HD camera, encouraging the crew to record more video to share with the public.

Make sure to have your popcorn and 3-D glasses ready, because it can get topsy-turvy working on an orbiting laboratory with no floor or ceiling.

To learn more about these cameras, including how astronauts and Grubbs' team approached a problem with the frequent burnout of camera pixels, visit the full text of the [online feature about NASA's 3-D cameras](#).

Hubscher, an ASRC Federal/Analytical Services employee, supports the Office of Strategic Analysis & Communications.

NASA Marks 14 Years of Humans Living and Working on the International Space Station

Nov. 9 officially marked 14 years of continuous human occupation of the International Space Station. More than 200 individuals have made the orbiting laboratory their home during that time. Over the years, crew members have worked with ground controllers to complete more than 1,550 research investigations and student experiments from more than 82 countries. NASA astronaut Barry “Butch” Wilmore, left, with European Space Agency astronaut Alexander Gerst, is a member of the newest crew on station. Wilmore, a native of Mt. Juliet, Tennessee, assumed command of the space station with the departure of Expedition 41 on Nov. 9. (NASA/Reid Wiseman)



Marshall Center Honors Military Veterans



John Wiley, U.S. Navy veteran and component development area lead in the Engineering Directorate at NASA's Marshall Space Flight Center, is pinned with an American flag by Kesia Kimbrough, of Marshall's Office of Human Capital, while team members look on at the 2014 Annual Meet and Greet Program on Nov. 6. Roy Malone, director of NASA's Michoud Assembly Facility; Col. Bill Marks, commander of the Redstone Garrison; and Command Sgt. Maj. Bob Lehtonen honored Marshall team members who serve or have served in the U.S. military. Malone and Marks expressed gratitude to Marshall veterans for their service and sacrifice to protect our nation's freedom. The event was hosted by Marshall's Office of Diversity & Equal Opportunity. (NASA/MSFC/Emmett Given)

Combined Federal Campaign Bus Tours End Nov. 20

As part of NASA Marshall Space Flight Center's annual Combined Federal Campaign, team members explored the non-profit Huntsville Botanical Garden on Oct. 20 to see what their contributions could make possible. Marshall team members are encouraged to [sign up](#) for bus tours to various local CFC-supported charities. CFC bus tours end Nov. 20. (NASA/MSFC/Fred Deaton)



SLS Brawn and “Brain” Getting Ready for Testing

The RS-25 engine with its new “brain” -- the engine controller unit -- was installed Oct. 24 on the A-1 Test Stand at NASA’s Stennis Space Center. Four RS-25 engines will power the SLS core stage, which will store cryogenic liquid hydrogen and liquid oxygen that will feed the vehicle’s RS-25 engines. The RS-25 will be tested at higher thrust and other operating requirements for the SLS, as well as the new engine controller. The advanced controller regulates valves that direct the flow of propellant to the engine, which determines the amount of thrust generated during an engine test. In flight, propellant flow and engine thrust determine the speed and trajectory of a spacecraft. The controller also regulates the engine startup sequence and determines the engine shutdown sequence, ensuring it will operate properly under both normal and emergency conditions. Pending final preparation and activation work, the first engine firing test is scheduled to begin by the end of the year, with additional tests continuing into 2015.

SLS will be the most powerful rocket ever built for deep space missions, including to an asteroid and ultimately Mars. The Marshall Center manages the SLS Program for the agency. (NASA/Stennis)

